Today's Topics:
                    Costas Loop in Digital Form
                           FT980 INFO
                   H&W traffic during disasters
                 Never heard of "BEGOHMS" before...
                   Scanner with spectrum analyzer
                 The End of Amateur Radio {Part 1/3}

Date: 20 Nov 89 22:20:21 GMT
From: kchen@apple.com (Kok Chen)
Subject: Costas Loop in Digital Form

mac@idacrd.UUCP (Robert McGwier) writes:

>From article <4858@abaa.UUCP>, by esker@abaa.uucp (Lawrence Esker):

>BECAUSE the things you mentioned counters, multipliers, filters, etc.
>WHICH ARE NEVER perfect in analog hardware, ARE nearly perfect in digital form.
>I apologize for the tone but your statements are just plain completely
>false. The transition followers, and other forms of hard limiting you
>mentioned, are decidedly INFERIOR. This is called Van Vleck's law about
>the approximately 2 dB (in a perfect implementation) loss in output SNR
>caused by the limiting process (which is an information theoretic result
>which follows intuitively since you are throwing away all the information
>except when zero crossings occur).

Van Vleck's (also known as the Arcsine law [e.g., in Papoulis' Probability
theory book]) sqrt(2.pi) result is in fact only good for small signals in
Gaussian noise - AND you have to adjust the spectrum by the arcsine law to
boot. In practice, I expect Mr. Esker's system to underperform Mr. McGwier's
system by MORE than 1.96 db.

For those unfamiliar with Van Vleck, it is described in the series of MIT
Rad. Lab. books on radar that were unclassified after the war. One of the
amazing result of applying it was when Sandy Weinreb (then at MIT, now at
NRAO) used it to build instrumentation in the mid-60's that finally detected
the OH radical in galatic space. I had hoped to catch a glimpse of Van
Vleck in the recent PBS documentary on Radar during WWII, but he was not
interviewed. Perhaps some Harvardite can tell us if Van Vleck is still
among us (or, did we lose another Nobel laurate to old age?).

If you REALLY have small-signal-in-Gaussian-noise case (like you guys

working satellites), then an extension to Van Vleck shows that a 16-level
(4-bit) quantizer only sustains a loss of 0.05 db if the levels can be AGC'ed
appropriately to the RMS noise level.

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Kok Chen   kchen@apple.COM
Apple Computer, Inc.

Date: Mon, 20 Nov 89 16:21:17 EST
From: Clark Fishman (FSF) <cfishman@PICA.ARMY.MIL>
Subject: FT980 INFO

WANTED-- schmatic diagram and pc-board layout for the
RF power amplifier section of the Yaesu FT- 980 HF tranceiver.

I will be most happy to pay copying and postage. Tnx,
    Clark Fishman WA2UNN
`   9 Sunset drive   Andover, NJ 08821

Date: 20 Nov 89 22:02:11 GMT
From: coherent!athertn!steveh@apple.com (Steve Harding)
Subject: H&W traffic during disasters

I pass along an editorial I wrote for the NTS Northern California Net
newsletter, The RELAY.

Lessons to be Learned From the Quake of '89

Good job. Those of you involved with disaster communications deserve a pat on
the back. ARES and RACES volunteers were active within minutes after the
earthquake. Other hams did what they could to help in shelter communicatons,
various nets, and as relief for other volunteers.

Those of you involved with Health and Welfare traffic deserve kudoes, as well.
Much of it got delivered. Some of it did not. It was not for the lack of
trying, however. We were flat out overloaded.

What have we learned from this experience? First of all, under the present
setup, do not expect Health and Welfare traffic to be delivered during the
first 48 hours. Hams trained in disaster communications are busy doing their
thing. The rest of us are taking stock of our own situation. Some stations
may be off the air because of power disruption. Others may have had equipment

failure for a number or reasons.

Secondly, the first reaction of most people is to help those who need help.
Once their own situation was well in hand, hams rushed to help out wherever
they could -- as relief operators in shelters, net control operators for the
various disaster communication nets, shadows for disaster officials, and other
such. Health and Welfare traffic was the least of their concern.

So...for the first 24 to 48 hours we have Health and Welfare pouring into the
area and few people handling it. On packet, the traffic was stacking up on the
various NTS BBSs at an alarming rate. The CW nets were overloaded as well.
With the suspension of NCN-VHF, NTS lost another outlet. Incoming health and
welfare traffic sat and grew whiskers.

The lesson here is, during the early stages of a disaster, people on the
outside are worried about their friends and loved ones. People on the inside
are concerned about putting things back into some semblance of order.

Your editor suggests the following:

For the first 48 hours, no one should try to pass Health and Welfare traffic
into a disaster area. Let the folks get their feet on the ground, assess their
damage, and find workaround solutions for their own internal communications
problems. Only outbound Health and Welfare traffic should be taken.

During the 48-hour "moratorium", those people minimally affected by the
disaster will have had the opportunity to make contact with the outside. This
will mean that fewer messages will be sent.

ARES and RACES volunteers should be alert to the needs of the outside world as
to the fate of their loved ones. When a shelter is set up, someone should be
there checking with each refugee as to whether there is someone outside to whom
they would like to send a message. This person can be a member of ARES or
RACES, or a volunteer. This will also cut down on the number of messages being
sent into the area.

Frequencies should be made available and manned by persons skilled in NTS
traffic to place these outbound messages into the system as soon as possible.

Following the 48-hour period, messages into the affected areas should follow
NTS procedures. This makes it easier for the delivering station to service
back what action has been taken. It also gives the delivering station the
information necessary to deliver the message. There were many instances of
messages like: To "415/555-2345 Call back 619/555-5432". What happens if
555-2345 is an incorrect number?

Keep the incoming messages short. Dan (WF6O), SCN Packet Manager, reports that
he serviced back a message that was over 200 words. Remember that delivering

hams may have dozens of messages to handle.

Packet operators especially, do not book Health and Welfare traffic. The books
have to be broken down somewhere along the line, and valuable time is lost.

agree, or if you have other suggestions, The RELAY would like to hear from you.

73...Steve (KA6ETB)

Steve -- KA6ETB @ N6LDL -- NTS NCN packet manager -- steveh @ atherton.com

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Date: Mon, 20 Nov 89 17:25:58 CST
From: rlwest@flopn2.csc.ti.com (Bob West - WA8YCD - DSEG/HRD Computer Systems
Training - MSG HRD1 - 995-1908)
Subject: Never heard of "BEGOHMS" before...

Reference recent postings discussing UNITS

 I have a rather yellowed and crumbling "Webster's New Collegiate Dictionary"
 Copyright (c) 1956 by G. & C. Merriam Co., which has on page 78, right-hand
column, about 8th entry from the bottom,

  beg'ohm (...), n. Elec. A unit of resistance equal to one billion ohms, or
   one thousand megohms.

that's one I never heard about in school... interesting.

Date: 20 Nov 89 21:20:01 GMT
From: helios.ee.lbl.gov!pasteur!east.Berkeley.EDU!phil@ucsd.edu (Phil Lapsley)
Subject: Scanner with spectrum analyzer

Paul Bame asked about a scanner with a LCD spectrum analyzer he saw in
an EEB catalog. I saw a full page ad for what I suspect is the same
scanner in Electronics and Wireless World.

The model is the the Standard AX700E Scanning Receiver. It's hard to
tell from the photo, but I'd guess it's about the same size as a FRG
9600, maybe a bit smaller, with about a 3"x4" LCD display that shows
the frequency and the spectrum. It covers 50 to 905 MHz, receives AM,
WBFM, and NBFM, and can scan in 5, 10, 12.5, 20, and 25 kHz
increments. There is also a 1 or 5 kHz up/down button. It runs on 12 V

and has 100 memories. The pan display can be set for 100 kHz, 250
kHz, or 1 MHz wide.

The company selling it is Lee Electronics, 400 Edgeware Rd, London W2,
England. I'd be very interested in comments from people who've actually
used one.

Phil Lapsley, N6TCT   phil@ucbarpa.Berkeley.EDU   ...!ucbvax!phiL

Date: 20 Nov 89 21:41:18 GMT
From: ux1.cso.uiuc.edu!tank!eecae!cps3xx!usenet@iuvax.cs.indiana.edu (Usenet file
owner)
Subject: The End of Amateur Radio {Part 1/3}

In <6847@portia.Stanford.EDU> paulf@jessica.Stanford.EDU writes:
>From "A History of the 20th Century" by Peter B. Long (c) 2031:
>Chapter 23: The Hobbyist Mentality: AMATEUR RADIO
>[stuff deleted]
>became a subsidy of the UN. The ability to make a free phone call anywhere
>in the world had a dramatic political impact (see Ch. 2), but it sounded the

I think this is highly unlikely! Free phone calls? Anywhere in the
world? Not while there is a buck to be made by somebody. Besides, it
costs money to maintain the telephone network. Somebody has to pay (and
somebody will be making a profit!).

Some of the ideas you portray, however, are truthful. They should be
sersiously considered by the bureaucrats at the ARRL.

Fat chance of this happening, though: when members write in with their
concerns, they get sent a form letter which does not address their
concerns or the issues they raised. Then said members resign from the
league, having made the decision that the situation is hopeless.

In the rare case that original ideas   Kenneth J. Hendrickson   N8DGN
are found here, I am responsible.   Owen W328, E. Lansing, MI 48825
Internet: hendrick@frith.egr.msu.edu   UUCP: ...!uunet!frith!hendrick

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End of INFO-HAMS Digest V89 Issue #909
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